

RIVERWOODS:
EXISTING ZONING - (HDR) - HIGH DENSITY RESIDENTIAL
MINIMUM LOT AREA: 10,000 SQUARE FEET
MINIMUM LOT WIDTH: 80 FEET
LOT COVERAGE: 30%

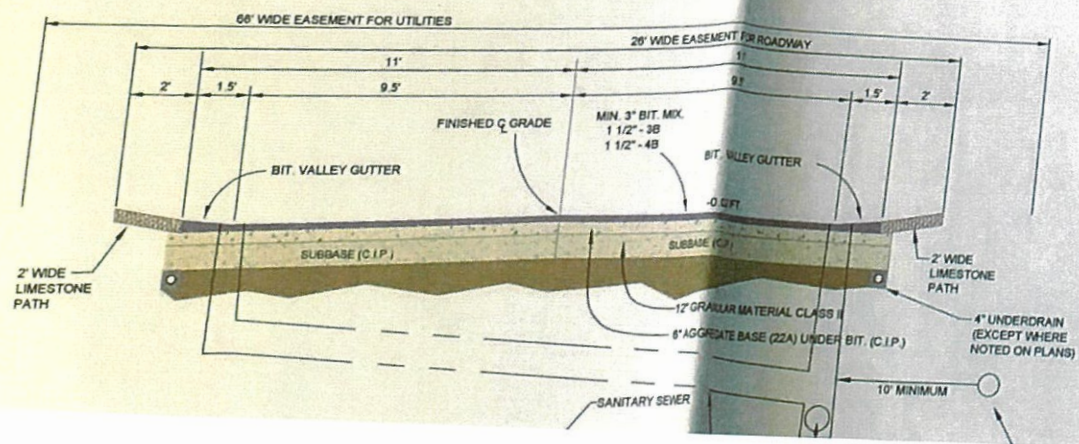
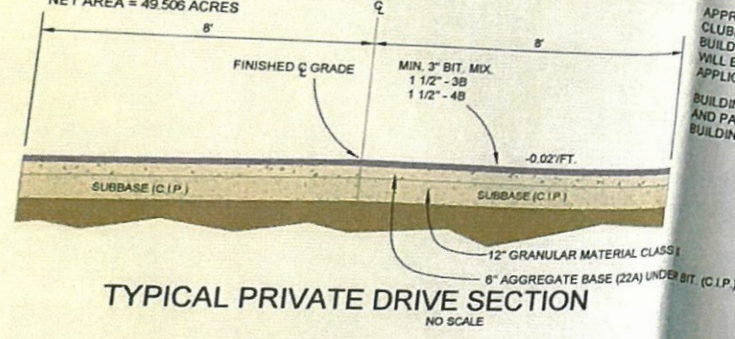
SETBACKS IN HDR DISTRICT:
FRONT - 35 FEET
SIDE - 10 FEET
REAR - 40 FEET
FROM BLUE STAR HIGHWAY - 110' FROM CENTERLINE

ALLOWED SETBACKS IN PUD (30% REDUCTION):
FRONT - 24.5' (AS MEASURED FROM 20' EASEMENT FOR ROADWAY)
SIDE - 7.5'
REAR - 28'

PUD:
TOTAL GROSS AREA OF PARCEL = 56.94 ACRES
ALLOWABLE UNITS = $(56.94) (43,560) = 232$ UNITS
10,000 SFT/UNIT

NUMBER OF UNITS PROPOSED = 167 UNITS + CLUBHOUSE

AREA OF PARCEL:
HDR = 51.66 ACRES
HDR LESS BLUE STAR HWY ROW AND 2ND AVE ROW = 44.21 ACRES
RD = 5.28 ACRES
RD LESS BLUE STAR HWY ROW = 4.17 ACRES
TOTAL = 56.94 ACRES
NET AREA = 49.506 ACRES



OPEN SPACE AREAS:
AREA A = 43,090 SQ. FT.
AREA B = 145,883 SQ. FT.
AREA C = 141,559 SQ. FT.
AREA D = 41,774 SQ. FT.
AREA E = 84,625 SQ. FT.
AREA F = 19,493 SQ. FT.
TOTAL OPEN SPACE = 476,474 SQ. FT.

APPROXIMATE LOCATION OF PROPOSED CLUBHOUSE AND POOL SITE. BUILDING LOCATION, ELEVATIONS AND PAVING WILL BE INCLUDED WITH BUILDING PERMIT APPLICATION. SEE PLAN BY ARCHITECT.

BUILDING LOCATION, ELEVATIONS AND PAVING WILL BE INCLUDED WITH BUILDING PERMIT APPLICATION.

PROPOSED ENTRANCE AS APPROVED BY MDOT AND PERMITTED BY VAN BUREN COUNTY ROAD COMMISSION

PROPOSED STORMWATER MANAGEMENT AREA

ZONING BOUNDARY LINE

APPROXIMATE LIMITS OF WETLANDS

STREET LIGHTING IS NOT PROPOSED. LIGHTING WILL BE PROVIDED VIA FIXTURES ON THE INDIVIDUAL UNITS AND AT APPROPRIATE COMMON AREA LOCATIONS.

PRIVATE ROADWAY DESIGN AND PROFILE WILL BE PROVIDED IN ACCORDANCE WITH SOUTH HAVEN TOWNSHIP PRIVATE ORDINANCE.

BOUNDARIES OF INDIVIDUAL UNITS (LOT LINES) MAY BE REVISED IN DESIGN ENGINEERING TO AFFORD NECESSARY BUILDING ENVELOPES AND PRESERVE EXISTING TREES.

THIS SITE PLAN SCHEMATICALLY PRESENTS PROPOSED LAND USE.

PROPOSED DRAINAGE, PRIVATE ROADWAY AND UTILITIES WILL BE DESIGNED IN ACCORDANCE WITH APPROPRIATE AGENCY REVIEWS.

APPROXIMATE LIMITS AND MODIFICATIONS



OWNER WILL RESTORE 2ND AVENUE IN ACCORDANCE WITH REQUIREMENTS OF VAN BUREN COUNTY ROAD COMMISSION

Riverwoods on the Trail Supporting Analysis

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1. PROPERTY OVERVIEW

Property Profile

Area: 58 acres

County: Van Buren County

Township: South Haven Charter Township

Latitude: 42.414324

Longitude: -86.257995

Address:

73240 2nd Avenue

South Haven, MI 49090

Phone #:

Van Buren State Park

(269) 637-2788



Near the border of Van Buren and Allegan Counties in southwest Michigan, the Riverwoods on the Trail property is located just south of the Black River and bordered by Blue Star Highway to the west and I-196 to the east. This largely undeveloped property was purchased by the state in 2013 with the intent of providing river access and rustic and modern camping along the Black River and the Kal-Haven Trail. Currently the site features 1,380 linear feet of frontage on the Black River featuring a picnic pavilion and boardwalk, and an underground utility system for 39 undeveloped building plots. The site is accessed by a road from the west off Blue Star Highway and from the south off 2nd Avenue. The property is only a 10-minute drive (or 20-minute bike ride) from North Haven Beach on Lake Michigan and connects via the 33.5-mile long Kal-Haven Trail Sesquicentennial State Park to the city of Kalamazoo. Riverwoods on the Trail is administered as part of the Kal-Haven Trail out of Van Buren State Park, 6-miles to the south

Location & Community

Riverwoods on the Trail is located in South Haven Charter Township, just east of the city of South Haven, which is the largest community in Van Buren County. As part of the “Great Fruit Belt” in southwest Michigan, Van Buren County is one of the highest producers of highbush blueberries in the nation: South Haven hosts the annual National Blueberry Festival each August. Throughout the year, this region attracts thousands of tourists eager to visit marinas and beaches, hike, bike, and snowmobile on the trails, and explore local businesses. I-196 (Gerald R. Ford Freeway) connects the area to Holland and Grand Rapids to the north and Benton Harbor and St. Joseph to the south. U.S. Highway 31 follows the Lake Michigan shoreline from the Indiana state line to just south of Mackinaw City. A section of U.S. Route 31 is dedicated as a portion of the Blue Star Memorial Highway in honor of military service members. U.S. 31 also forms part of the Lake Michigan Circle Tour (a designated scenic road tour linking all the Great Lakes) and the West Michigan Pike Pure Michigan Byway, which highlights scenic, natural and cultural attractions along the route. Riverwoods on the Trail’s location along Blue Star Memorial Highway, Ford Freeway, the Kal-Haven Trail and the Black River give it the potential to be an ideal spot within South Haven Charter Township to take a break from travel and adventures to enjoy the scenery, picnic at the pavilion, fish, or set up camp.



Black River covered bridge on the Kal-Haven Trail

2. EXISTING SITE CONDITIONS AND SURROUNDING LAND USE

Existing Site Conditions

The Riverwoods property was originally intended to be a residential sub-division developed in four phases. However, after the initial phase of utility improvements was completed, construction was halted due to the financial downturn in 2008/2009. Underground utilities including water, sanitary sewer, gas, and electric, have already been developed for 39 units, as well as major service roads and stormwater infrastructure. A report by Abonmarche for the DNR in June 2018 details the extent and the condition of the existing site utilities and infrastructure.

This property is a Part 201 facility due to arsenic contamination of the soil in several locations. These areas are fenced and signed. See Legal Mandates Section (p.19) for more information on contamination and Due Care Plan set in place.



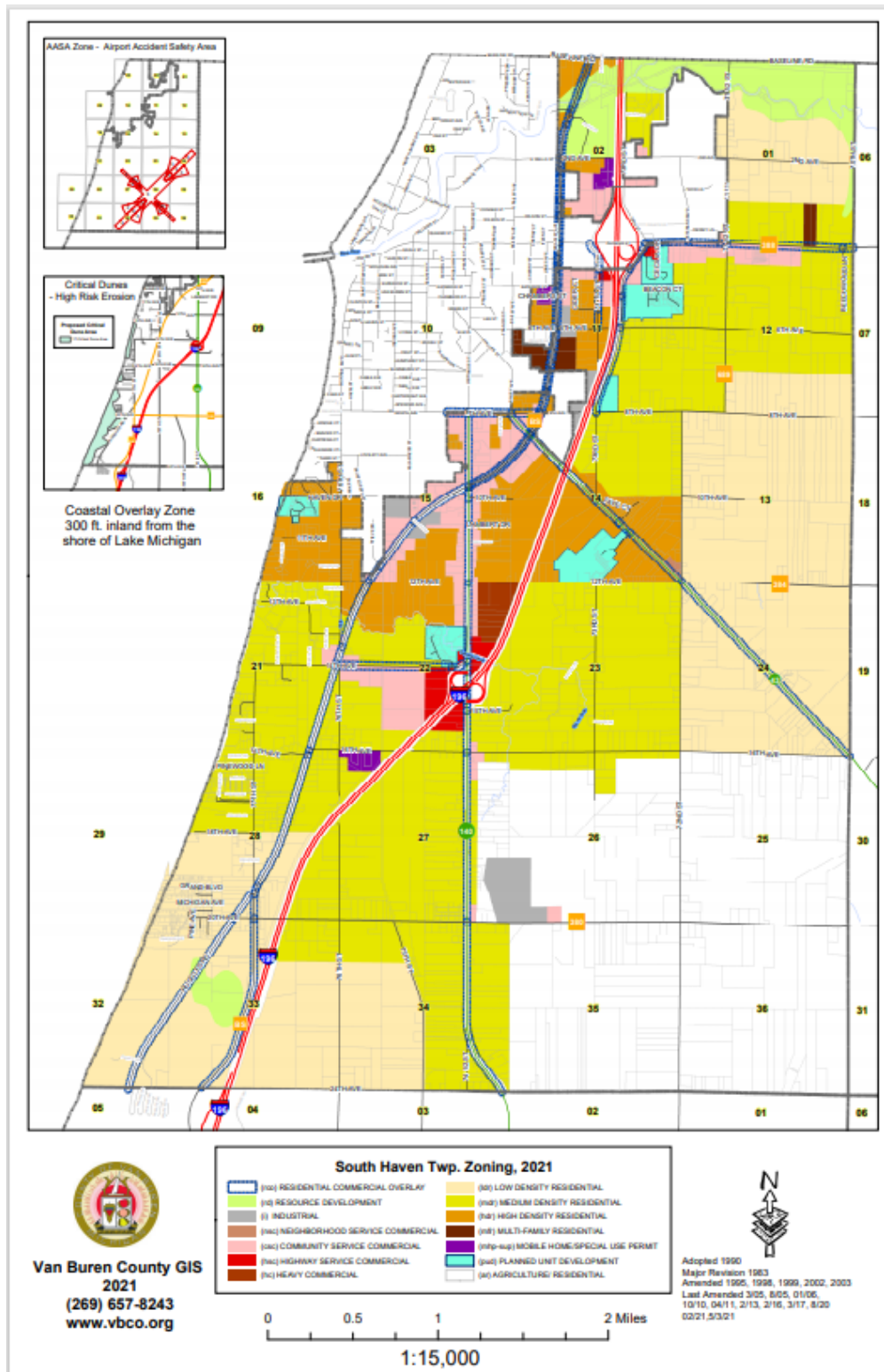
Site entrance off Blue Star Highway



Fencing and signage around sites of environmental concern

Zoning

According to the 2021 South Haven Township zoning map, Riverwoods on the Trail property is classified as Resource Development (RD). The area adjacent to the Black River in the north of the property is zoned Resource Development (see definitions on the following page). The property was originally zoned as High Density Residential (HDR). After acquiring the property, the MDNR placed a request to have the entire property rezoned to a Resource Development District (RD). This was approved by the South Haven Township board in January 2020.



Surrounding Land Use

The Michigan Department of Transportation owns approximately 9.5 acres east of the property, as part of the Right-of-Way for I-196 (Ford Freeway). The majority of land south of the property (across 2nd Avenue) is classified as High Density Residential (HDR) with single family homes. The 2009 South Haven Township Master Plan states that the purpose of HDR Areas is to provide a “small and less expensive type of housing, as well as a broader range of choice of house types”. Beyond the southern HDR zone along Blue Star Highway is a Community Service Commercial zone, providing a variety of restaurants and commercial operations. Zoning southeast of the property is classified as “Mobile Home/Special Use Permit”, featuring a mobile home park. Blue Star Highway runs west of the property. The City of South Haven begins on the western side of Blue Star Highway and classifies land use bordering the highway as R-2 Residential (Single Family Residential) and B-3 Waterfront Business in the 2016 Zoning Map. The area along the Black River and the Kal-Haven Trail, which run through the northern section of the property, are classified as Resource Development areas, the purpose of which is to ensure land use is “compatible with the conservation and preservation of large tracts of land...” and includes sensitive areas, flood hazard zones, and “other extensive land uses which retain the natural character of the area”.

Zone/Classification	General Location	Purpose
High Density Residential (HDR)	Southern boundary	Provide diverse housing options which are small and affordable. Includes condominium owner and rental units
Resource Development	Northern boundary	Conserve large tracts of land which may include sensitive areas or large tracts of land which retain the natural character of the area.
Medium density residential	Eastern boundary (across I-96)	Provide single family residential uses at a density capable of supporting municipal sanitary sewer and water utilities at an affordable cost.
B-3 Waterfront Business	Western boundary (across Blue Star Highway)	Retain waterfront resort community character and protect area from changes making it less accessible.
Community Service Commercial	South of HDR zone (along Blue Star Highway)	Provide retail trade and service outlets easily accessible to residents.

3. DEMOGRAPHICS

2010 U.S. Census Data for Van Buren County

Van Buren County is largely rural in nature; a region in which manufacturing, agriculture, and tourism each play a prominent role. As of the 2010 U.S. Census, the population of the county was 76,258, a negligible decline from the reported population in the 2000 Census. Despite the minimal total population change, there has been a 37.70% increase in the Hispanic and Latino population. Individuals of Hispanic or Latino background now make up 11.60% of the county, which is more than double the reported makeup for Michigan overall.

Compared to State of Michigan statistics, the county is slightly less economically well-off. At 16.5%, the county poverty rate is approximately 2% higher than the state rate. Additionally, the median household income is \$3,000 lower in Van Buren County than it is for Michigan as a whole. The City of South Haven is the largest community in the county with a population in the region of 5,000. The population of South Haven Township is recorded at just under 4,000.

2010 U.S. Census Data for Allegan County

The 2010 U.S. Census reported 111,408 residents in Allegan County. Between 2000 and 2010, the population has grown an estimated 5.44%, with a 23.41% increase in the Hispanic and Latino population. At the time of the 2010 Census, 7.40% of the population identified as Hispanic or Latino. The median household income for the county between 2012 and 2016 was reported at \$55,630, placing them slightly above the median household income for the state overall. Additionally, at 9%, the county poverty rate is 5% lower than the Michigan poverty rate.

GEOGRAPHY QUICKFACTS			
	ALLEGAN COUNTY	VAN BUREN COUNTY	MICHIGAN
Population per square mile, 2010	135.0	125.50	174.80
Land area in square miles, 2010	825.23	607.47	56,538.90
POPULATION QUICKFACTS			
	ALLEGAN COUNTY	VAN BUREN COUNTY	MICHIGAN
Population estimates, 2017	116,447	75,353	9,962,311
Population estimates base, April 1, 2010	111,410	76,263	9,884,129
Population, percent change - April 1, 2010 to July 1, 2017	4.50%	-1.20%	0.80%
Population, Census, April 1, 2010	111,408	76,258	9,883,640
Persons under 5 years, percent	6.20%	6.10%	5.80%
Persons under 18 years, percent	24.40%	23.60%	21.80%
Persons 65 years and over, percent	16.00%	17.60%	16.70%
Female persons, percent	50.10%	50.30%	50.80%
White alone, percent	95.00%	91.50%	79.40%
Black or African American alone, percent	1.50%	4.00%	14.10%
American Indian and Alaska Native alone, percent	0.70%	1.20%	0.70%
Asian alone, percent	0.90%	0.70%	3.20%
Native Hawaiian and Other Pacific Islander alone, percent	Z	Z	Z
Two or More Races, percent	1.80%	2.50%	2.40%
Hispanic or Latino, percent	7.40%	11.60%	5.10%
White alone, not Hispanic or Latino, percent	88.40%	81.20%	75.20%
Veterans, 2012-2016	6,265	5,185	602,630
Foreign born persons, percent, 2012-2016	2.80%	4.80%	6.40%
Housing units, 2017	51,123	37,226	4,595,158
Owner-occupied housing unit rate, 2012-2016	81.10%	77.50%	70.80%
Median value of owner-occupied housing units, 2012-2016	\$144,600	\$121,400	\$127,800
High school graduate or higher, pct. age 25+, 2012-2016	90.10%	86.50%	89.90%
Bachelor's degree or higher, pct. age 25+, 2012-2016	21.40%	20.30%	27.40%
Mean travel time to work (minutes), workers age 16+, 2012-2016	23.8	24.5	24.3
Median household income, 2012-2016	\$55,630	\$47,141	\$50,803
Per capita income in past 12 months, 2012-2016	\$25,840	\$23,943	\$27,549
Persons in poverty, percent	9.00%	16.50%	14.20%

2010 U.S. Census Data retrieved from census.gov/quickfacts. Accessed November 2018.

4. REGIONAL RECREATION RESOURCES

Below is a description of the primary recreation resources in the vicinity (approximately 30-mile radius) of Riverwoods on the Trail.

Federally Owned Resources

There are few federally owned resources in the region. The Kinney Waterfowl Production Area is located in southeastern Van Buren County adjacent to the Cornish State Game Area and is cooperatively managed for wildlife by the DNR Wildlife Division and U.S. Fish and Wildlife Service Midwest Office.

State Owned Resources

State Parks and Recreation Areas

- **Kal-Haven Trail Sesquicentennial State Park** is a 33.5-mile trail built on the grade of the former Kalamazoo and South Haven Railroad, which began its operations in 1870. Crossing through farmland, small towns, and forests, this crushed limestone and slag trail is open to hiking, biking, as well as snowmobiling and cross-country skiing in winter months. There is also an 11-mile parallel section where horses are allowed. This trail crosses through the Riverwoods property with the western trailhead located a half mile to the east.
- **Van Buren Trail State Park** is a 14-mile trail between South Haven and Hartford. Like Kal-Haven, this multiuse trail was created on former railway lines. The trail is open to hiking, biking and horseback riding, as well as snowmobiling and cross-country skiing when snow conditions allow. The Van Buren Trail Spur is a 4.5-mile paved section which directly connects Van Buren State Park to the City of South Haven.
- **Van Buren State Park** is just over five miles southeast of the Riverwoods on the Trail. Located on Lake Michigan, the park features one mile of shoreline, sand dunes, and bike-friendly trails leading into South Haven. The park contains 220 modern campsites with firepits, picnic tables, restrooms, and dog-friendly beach areas.
- **Saugatuck Dunes State Park** is a 1000-acre day-use park located 23 miles north of Riverwoods on the Trail. With dunes rising over 200 feet tall and two and a half miles of

shoreline, this park is open to hiking, swimming and is a popular destination for nature enthusiasts.

- **Grand Mere State Park** is located 35 miles south of Riverwoods on the Trail and offers over 1 mile of Lake Michigan shoreline. The park has over 1,000 acres of undeveloped woods and sand dunes, with three geologically ancient lakes. The area is open to hunting and fishing, and features hiking trails, dog-friendly beach areas, cross-country skiing, and a picnic shelter.
- **Holland State Park** is approximately 35 miles north of the Riverwoods on the Trail. This 142-acre park boasts two modern campgrounds, sand beaches on Lake Michigan and Lake Macatawa, swimming, fishing, ADA barrier-free paths, hiking opportunities and connection to the area's non-motorized trail system.
- **Warren Dunes State Park** is approximately 40 miles south of South Haven. The 1,952-acre park hosts three miles of shoreline and six miles of hiking trails, as well as modern and rustic campsites and modern mini cabins. The park is pet friendly and open year-round. Dunes rise 260 feet above Lake Michigan, providing spectacular views for visitors.

State Game Areas

- **Allegan State Game Area** is approximately 16 miles north of South Haven and encompasses nearly 50,000 acres of land available for hunting during the appropriate seasons and outdoor exploration throughout the year. There are several campgrounds administered by Allegan County Parks and Recreation within the game area, including those which feature equestrian-friendly campsites and trails.
- There are several much smaller state game areas in Van Buren County, including **Cornish State Game Area** (385 acres), **Keeler Township State Game Area** (396 acres) and **Fuller Woods State Game Area** (85 acres).
- **Wolf Lake State Fish Hatchery** is located 30 miles southwest of Riverwoods on the Trail. Originally established in 1927, this hatchery features a visitor center hosting educational programs and a live fish cam. The hatchery produces steelhead, Chinook salmon, walleye, and Great Lakes muskellunge. There are four trails on the hatchery for visitors to explore.

Regional Trails

- **Bangor/South Haven Heritage Water Trail** is a 20-mile canoe and kayak trail on the South Branch of the Black River between the cities of Bangor and South Haven. This trail features 15 interpretive signs throughout, family-friendly sections with minimal obstacles, as well as a “wilderness section” for more experienced paddlers. This water trail passes through the Riverwoods property and the pavilion may serve as a rest point for paddlers to picnic.
- **Great Lake to Lake Route #1** In the Western Region, the Great Lake-to-Lake Trails Route #1 traverses Van Buren, Kalamazoo and Calhoun Counties as it travels through the towns and townships of South Haven, Lacota, Grand Junction, Bloomingdale, Gobles, Pine Grove, Kendall, Kalamazoo, Comstock, Galesburg, Augusta, Battle Creek, Marshall, Albion and Homer. In total, the trail spans 275 from South Haven to Port Huron.

Municipal Owned Recreational Land

There are numerous county, city and township parks and beaches in the vicinity. Van Buren County features nearly 30 parks, trails, and municipal marinas ideal for fishing, canoeing/kayaking, swimming, hiking, and biking. Allegan County has six county parks and two campgrounds. Recreation activities include horseback riding, hiking, swimming, fishing, playgrounds for kids and much more. Listed below are a few of the parks near Riverwoods on the Trail.

- **North Beach** and **South Beach** (City of South Haven) are the most popular public beaches in South Haven, sitting on either side of the Black River outlet into Lake Michigan.
- **South Beach** is host to the big red South Pier Lighthouse, which began operations in 1872.
- **Deerlick Creek Beach** (South Haven Charter Township) is an ideal spot for launching kayaks and canoes. It may also be a good site for fossil collecting.
- **North Point Conservation Area** (Van Buren County) is a 17-acre park that borders the northern boundary of Van Buren State Park and is now included in the day-to-day management of the state park, via a lease with Van Buren County. The property has approximately 340 feet of Lake Michigan frontage including forested critical dunes. This park is colloquially known as “Old Boy Scout Camp” due to the significant role Eagle Scouts have played in its maintenance.

- **Ely Lake Park** (Allegan County) is located within the Allegan State Game Area and features primitive campsites, swimming, trails for hiking and cross-country skiing, non-motorized boats, as well as equestrian trails and camping.
- **Covert Township Park** – Campground and day-use area on the shores of Lake Michigan including 62 developed and primitive campsites, four small cabins, picnic facilities and paddleboard/ kayak rental
- **Black River Park and Boat Launch** (City of South Haven) hosts 60 seasonal and transient docks, an easy-to-use kayak launch, and 10 boat launch ramps. This park is handicap accessible and its amenities include showers, restrooms, a picnic area, and playground.
- **Municipal Marinas** (City of South Haven) Seasonal and transient boaters may use any of four municipal marinas. Between the Northside Marina, Southside Marina, Museum Marina, and Black River Park Marina, there are 229 slips available from 30 to 50 feet, with broadside dockage. All slips are equipped with electricity, with either 30 or 50 amp current. Marinas feature amenities such as showers, restrooms, picnic areas, and laundry facilities on site.

Nature Preserves

- **Black River Preserve** (Southwest Michigan Land Conservancy) features 121 acres open to hiking, fishing, cross-country skiing, and snowshoeing. There is approximately two miles of river frontage through the park; one mile along the Black River and one mile along three tributaries streams. Black River Preserve participates in SWMLC's "HOP!" Program, which encourages outdoor recreation for kids and families.
- **Pilgrim Haven Natural Area** (Southwest Michigan Land Conservancy) spans 26.5 acres with one easy trail leading to Lake Michigan overlooks. This area also features barrier-free, paved beach access. Pilgrim Haven Natural Area participates in SWMLC's "HOP!" Program.
- **Porter Legacy Dunes** Located right across from Pilgrim Haven Natural Area. 48 acres of rare, healthy, backdune forest, carpets of native spring wildflowers, winding Dyckman Creek, 1,100 feet of frontage with spectacular natural dune along the Lake Michigan shoreline.
- **Jeptha Lake Fen** (Southwest Michigan Land Conservancy) hosts 49 acres of fen, wet forest, and old field along the shores of the Upper and Lower Jeptha Lake. The preserve

is open to hiking and snowshoeing, as well as canoeing and kayaking. The rare flora and fauna found here also make it an excellent site for photography and wildlife viewing.

- **Portman Nature Preserve** (Southwest Michigan Land Conservancy) is a 189 acre preserve in Van Buren County. Trails are friendly for hikers with easy-to-moderate skill levels. This preserve is open to cross-country skiing, snowshoeing, and hiking. This preserve boasts incredible biodiversity and forms a portion of the headwaters of the Paw Paw River. Portman Nature Preserve also participates in the SWMLC's "HOP!" program.
- **Ross Coastal Plain Marsh Preserve** (The Nature Conservancy) is located ½ mile east of Lake Michigan, just south of South Haven along the I-196 corridor. This 1,448-acre preserve is open to hiking and snowshoeing, as well as firearm and bow hunting with a Conservancy-issued permit for white-tailed deer. It features five miles of trails and is host to many different habitat types, including wet meadows, sand dunes, wooded inland dunes, and more.

Private Recreation Resources

Due its prominence as a summer tourist destination, South Haven hosts several private campgrounds and R/V parks. These offer a variety of rustic and modern camping experiences with a wide array of amenities available. A few of the known campgrounds and R/V parks in the South Haven area are listed below.

- **Kal-Haven Outpost** features primitive campsites, R/V sites, cabins, and houses. Located on County Road 687, just south of Baseline Road.
- **Jensen's RV Park & Motel** is a family run R/V park equipped with 80- season RV sites (both seasonal and transient) and 14 motel rooms. The Jensen's RV Park & Motel is less than a mile from 1st Street Beach on North Shore Drive.
- **Black River Trails Campground** offers tent sites, cabins, and a selection of small camper sites. Right on the river, visitors may rent canoes and kayaks on site. Located across from the Black River Preserve.
- **Cousins' RV Park** is open to R/Vs from May until October. This park located off Blue Star Highway, north of North Shore Drive, features many amenities including laundry facilities, a clubhouse, and more. In addition, there are numerous private companies offering boat and jet ski rental, tugboat and sail boat rides and fishing charters. There are also several golf courses in the vicinity, including Hawkshead Links and Beeches Golf Course, both within five miles of the Riverwoods property.

- **South Haven Jellystone Park** South Haven's only family resort located just 5 miles from Lake Michigan. Take advantage of outdoor fun for the whole family with resort amenities, complete with cable and Wi-Fi. Only 1/2 mile from the scenic Kal-Haven Trail. Our cabins and cottages are pet friendly and offer ADA accessibility. Whether you are RV'er, a back-to-basics "Tenter" or appreciate the convenience and comforts of Cabins or Cottages, Yogi Bear's Jellystone Park™ Camp-Resort offers something for everyone! We are located off Phoenix Road and only 5 miles from Lake Michigan.
- **The Fields** The Fields is a first-of-its-kind luxury glamping experience located in the country side of South Haven, Michigan, one of the most in-demand destinations for vacation getaways in the United States. A night inside the enchanted tents of The Fields is a night unlike anything you have experienced. The Fields will transport you back to your childlike wonder, connect you with the untapped Earth and, most importantly, to yourself and your loved ones.

Historic Resources

- **Michigan Maritime Museum** is located on the west side of the Black River near Stanley Johnson Park. The Michigan Maritime Museum is dedicated to preserving Michigan's history on the Great Lakes through museum exhibits, hands-on learning experiences, and festivals. The museum is home to the *Friends Good Will*, a 2004 reproduction of a tall ship initially built in 1810, which is one of nine ships that visitors may ride.
- **South Haven South Pierhead Light** (City of South Haven) was first lit in 1872 and is located near South Beach where the Black River feeds into Lake Michigan. In 1903, the wooden structure was replaced with a cast iron lighthouse at the end of the same pier. The keeper's house, also built in 1872, is managed by the Michigan Maritime Museum and operates as the Marialyce Canonie Great Lakes Research Library.

5. HISTORY OF THE REGION AND THE PROPERTY

History of the Region

Evidence suggests that a prehistoric race occupied Van Buren County as long as 12,000 years ago. In the 1600s, Ottawa, Miami and Pottawattomi peoples were known to reside in the region either permanently or seasonally, primarily living by hunting and fishing. Van Buren County was established in 1829 when European settlers arrived. The county government was fully organized

in 1837, as roads and stagecoach lines further opened the region for development. The first sawmill was constructed on the banks of the Black River in the 1850s.

As forests were cleared, agriculture dominated the landscape. This area of southwest Michigan has been part of the “great fruit belt” for decades. Once known for apples and peaches, fruit production still flourishes in the region, though now raspberries and blueberries are the most common agricultural commodities. In the 1900s, South Haven became known as a resort town, attracting visitors from Chicago travelling by steamboat and connecting to other major towns through the railway systems, such as the Kalamazoo and South Haven Railroad, which began operations around 1870.

History of the Site

The only known cultural resource on this site is the grade of the Kalamazoo and South Haven Railroad on which the Kal-Haven Trail is built, crossing the northern portion of the property. A pilot project is underway with the Michigan History Center to interpret the history of the land through which the trail passes through the Michigan Heritage Trail Program. The Kal-Haven Trail, dedicated in 1989, was one of the first rail trails developed by the Michigan DNR.

According to the Baseline Environmental Assessment prepared in March 2014, a commercial apple orchard used to exist in the northern portion of the Riverwoods property, though it is not clear when operations began or ceased, or who owned the land. In the 1950s, four houses were built in the southern portion of the property, but these are no longer present. Prior to 1938, aerial images show that the land was agricultural or undeveloped.

In the early 2000s, this property was purchased and partially developed with the intent of turning it into a condominium housing development. As part of this project, the area was equipped with electric and water utilities, as well as a sanitary sewer lift station.

In 2013, Riverwoods on the Trail was purchased by the Michigan Department of Natural Resources. Plans for the future use of the property have not been finalized, but its existing infrastructure, proximity to the Black River with a pavilion and boardwalk, and the presence of the Kal-Haven Trail lend it to be an important site for numerous recreational opportunities.

6. LAND OWNERSHIP

The land that comprises this property has been acquired by the state through the Michigan Natural Resources Trust Fund, State Trails Initiative and Southwest Michigan Land Consolidation. The state holds surface and mineral rights to the entire property. Future use may be subject to restrictions associated with the conditions attached to the funding source.

Michigan Natural Resources Trust Fund (MNRTF)

The MNRTF was created by a state constitutional amendment in 1984, which required that oil, gas, and other mineral lease and royalty payments be placed into the Trust Fund, with proceeds used to both acquire and develop public recreation lands. To implement the constitutional amendment, the Legislature passed the Michigan Natural Resources Trust Fund Act of 1985 (P.A. 101 of 1985, Act 101). Lands Purchased using this MNRTF must be used for public recreation.

Easements & Leases

There are no documented easements or leases for this property.

Minerals

The Michigan DNR holds 100% of the mineral rights on this property. No parcels are excluded.

7. LANDSCAPE CONTEXT AND NATURAL RESOURCES

Regional Landscape

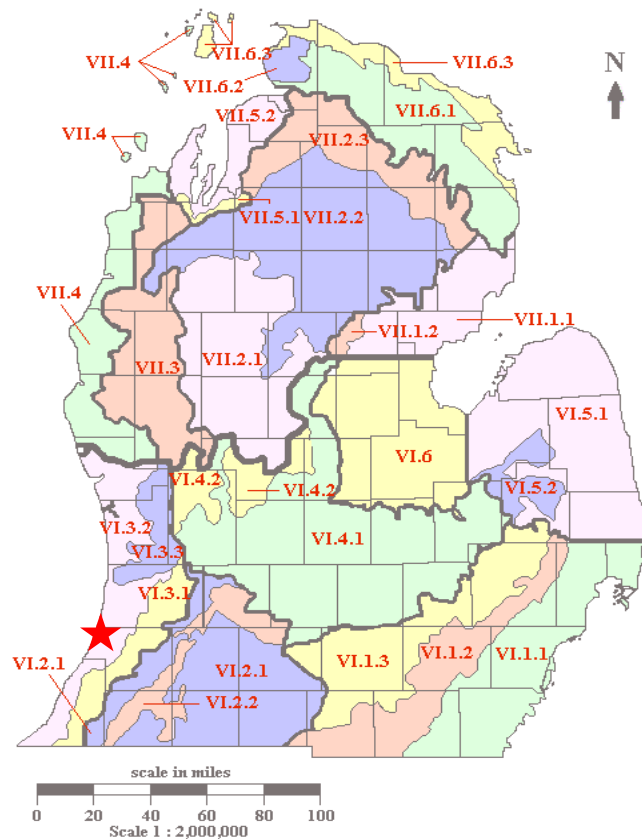
A regional landscape ecosystem classification has been developed for Michigan, which distinguishes major landscapes based on macroclimate, physiography, soil and vegetation. The following information was obtained from the *Regional Landscape Ecosystems of Michigan, Minnesota and Wisconsin* prepared by Dennis Albert in 1995.

Riverwoods on the Trail is located in the lower half of ecoregion sub-subsection VI.3.2. Southern Lake Michigan Lake Plain. This sub-subsection is on the western portion of subsection VI.3 Allegan, which is characterized by sand dunes and flat lake plain. The subsection is subject to approximately 32-38 inches

of rain annually and 70-100 inches of snowfall (south to north) due to lake-effect, which is less impactful on the eastern edge. The entire sub-subsection is underlain by Paleozoic bedrock and includes Devonian shale, Mississippian shale, sandstone, dolomite, and gypsum, as well as localized exposures of Coldwater shale. Glacial drift is 50 to 350 feet thick throughout the sub-subsection. The area predominately consists of lacustrine deposits, fine-textured end and ground moraines.

Topography

This Riverwoods site is a hilly, wooded area, which slopes northward toward the Black River. The property rises out of the river flood plain from 590 feet to a maximum elevation of 650 feet.



Source: Albert, Dennis A. 1995. *Regional landscape ecosystems of Michigan, Minnesota and Wisconsin: a working map and classification*.

Geology

The geological features of the Riverwoods on the Trail appear to be consistent with the rest of the region. The bedrock is made up of Coldwater Shale, while the surface geology is made up of end moraines of fine-textured till and fine-textured glacial till.

Soils

This site is predominantly comprised of selfridge loamy sand and brems sand. Near the Black River, ponded aquents and histosols may be found, as well as blountsilt loam and sloan loam. Selfridge loamy sand is level, somewhat poorly drained soil.

Early 1800's Vegetation

The General Land Office mapping of the 1800's indicates that this region was primarily comprised of Beech-Sugar Maple forests, with mixed hardwood swamp areas along the Black River.

Current Vegetation

No known studies have been conducted on the site identifying specific vegetation. The site is primarily made up of vegetation associated with riparian/wetland zones and hardwood forests, with both native and non-native species.

Rare Flora and Fauna

While it has not been studied recently, there are no known threatened, rare, or endangered species on this property. *Acris blanchardi*, or Blanchard's Cricket Frog, is a threatened species of frog native to Michigan. It was last officially observed in the area in 1997, but there were sightings as recently as 2017 in adjacent counties.

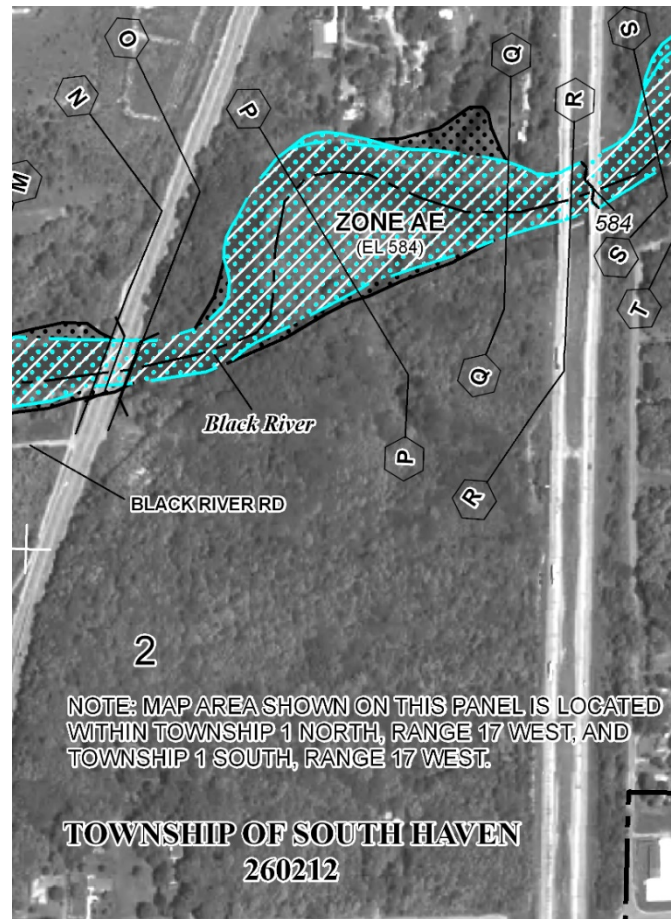
Wildlife

No known studies have been done on the site. Species that are likely to be found include small mammals (squirrel, skunk, rabbit etc.) and amphibians, reptiles and invertebrates associated with the river corridor. There is also potential for larger mammals, such as white-tailed deer, although the site's location between two major highways may limit access. The river corridor and woodlands also provide habitat for a variety of birds including turkey and waterfowl.

Water Resources

This property is located within the Black River Watershed, which encompasses approximately 287 square miles in Allegan and Van Buren Counties in Southwest Michigan. The Black River consists of three primary tributaries, the North, Middle, and South branches, which converge approximately 4.2 miles prior to flowing into Lake Michigan at South Haven. This river runs through the city of South Haven and provides a northern border to the Riverwoods property with 1,380 feet of river frontage.

The northernmost portion of the property is within the Black River floodway, with a base flood elevation of 584 feet (surveyed in 2009). There are four cross-sections identified within the property, O, P, Q, and R, each with flood elevations ranging between 583.50 and 584.10 feet. The floodway, as described by FEMA, is the channel of a stream and any adjacent floodplain areas that must be kept free of encroachment so that there are no significant increases in base flood heights (the 1% annual chance flood).



Fisheries

The Black River mainstream from the confluence of North and South branches down to Lake Michigan is a designated Type 3 Trout Stream, which is open to fishing all year with limits on size and number of catch. The Michigan Department of Natural Resources routinely stocks fish in the Black River. Stocking includes Chinook salmon, steelhead, and walleye. Largemouth bass, smallmouth bass, northern pike, yellow perch, freshwater drum, common carp, suckers, catfish, and panfish are also found in this part of the river.

A fish consumption advisory exists for carp and sucker in the river due to contamination from PCBs and Mercury (Michigan.gov/eatsafefish).

8. LEGAL MANDATES

For all park general management plans, legal mandates are identified that serve to further guide the development of the general management plan and subsequent action plans. For our planning purposes, the term “Legal Mandates” refers not only to federal and state law, but also the administrative tools of “Policy” and “Directive” of the Natural Resource Commission, the Department, and the Parks & Recreation Division. Examples include Orders of the Director, Park and Recreation Areas State Land Rules and all other laws, commission orders, and rules or directives that apply to the park. Specific to Riverwoods on the Trail the following legal mandates have been identified.

Part 201 Priority List of Contaminated Sites

The Riverwoods property is a Part 201 (State of Michigan Act 451) facility, due to soil containing concentrations of arsenic and groundwater containing concentrations of lead at levels exceeding Part 201 Generic Residential Cleanup Criteria (GRCC). Potable water is provided to the property by a municipal water supply, therefore the primary concern is through site disturbance. A Due Care Plan was developed by Fleis and Vanderbrink for the property in June 2014 under Section 20107A(1) of P.A. 451, Part 201, as amended, which documents certain conditions and safety procedures that must be met, including the following:

- Workers will be provided information on the known site contamination
- All activities will be conducted in accordance with local, state and federal regulations
- Keep a record of handling of contaminated soils and their final disposition
- Have subsurface work conducted in areas of known contamination overseen by a qualified person.
- Provide appropriate personal protection equipment
- Document a Health and Safety plan for the work

FEDERAL STATUTE	
ENDANGERED SPECIES ACT, 1973	
This Act authorizes the determination and listing of species as endangered and threatened, and prohibits unauthorized taking, possession, sale and transport of endangered species	
NATIONAL HISTORIC PRESERVATION ACT, 1966 AS AMENDED	
This is the primary federal law governing the preservation of cultural and historic resources in the United States. The law establishes a national preservation program and a system of procedural protections which encourage the identification and protection of cultural and historic resources of national, state, tribal and local significance.	
STATE STATUTE	
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT (NREPA) AND AMENDMENTS	
<i>PA 451 of 1994, Part 5</i>	Gives the DNR authority to make rules to support its mission. This includes State Land Rules, Land Use Orders, Wildlife Conservation Orders, Fisheries Orders and Watercraft Control.
<i>PA 451 of 1994, Part 31 Water Resources Protection</i>	Provides authority to DEQ to require a permit for any occupation, construction, filling, or grade change within the 100-year floodplain of a river, stream, drain, or inland lake.
<i>PA 451 of 1994, Part 301 Inland Lakes and Streams</i>	Requires a permit from the state (DEQ) to undertake certain activities relating to inland lakes and streams, such as dredging, fill, marinas, structures, alteration of flow, etc.
<i>PA 451 of 1994, Part 303 Wetlands Protection</i>	Requires a permit from the state (DEQ) to undertake certain activities in regulated wetlands, such as, dredging, fill, construction or drainage.
<i>PA 451 of 1994, Part 741 State Park System</i>	The department shall create, maintain, operate, promote, and make available for public use and enjoyment a system of state parks to preserve and protect Michigan's significant natural resources and areas of natural beauty or historic significance, to provide open space for public recreation, and to provide an opportunity to understand Michigan's natural resources and the need to protect and manage those resources.
<i>PA 35 of 2010, Part 741 Recreation Passport</i>	This act amended the Michigan Motor Vehicle Code to provide for a State Park and State-operated public boating access site "Recreation Passport" that a Michigan resident may obtain by paying an additional fee when registering a motor vehicle.
<i>PA 451 of 1994, Part 761 Aboriginal Records and Antiquities</i>	The state reserves the exclusive right and privilege to all aboriginal records and other antiquities including those found on the bottomlands of the Great Lakes.
<i>PA 451 of 1994, Part 201 Environmental Remediation</i>	The purpose of this part is to provide for appropriate response activity to eliminate unacceptable risks to public health, safety or welfare, or to the environment from environmental contamination. It gives authority to the DEQ to coordinate activities and promulgate rules necessary to implement this part.
ORDERS	
There are currently no Orders pertaining to this property.	
STATE LAND RULES	
Parks and Recreation Areas – State Land Rules are issued by authority conferred on the Michigan DNR by Section 504 of 1994 PA MCL 324.504. The rules cover entry, use and occupation of stand lands and unlawful acts.	

9. RECREATIONAL RESOURCES

This property features frontage along the Black River, with a boardwalk and pavilion, as well as trails connecting to the 33-mile Kal-Haven trail, which allows hiking, biking, skiing, and snowmobiling. The future recreational activities and facilities for this site have not been determined at this time. Potential uses include: camping, fishing, hiking, and biking.



Gazebo and boardwalk on the Black River

REFERENCES

<http://geo.msu.edu/extra/geogmich/paleozoic.html>
<http://lighthousefriends.com/light.asp?ID=187>
<http://swmlc.org/>
<http://www.michigandnr.com>
<http://www.michiganwatertrails.org>
<http://www.shorelinevisitorsguide.com>
<http://www.south-haven.com>
<https://hdl.handle.net/2027/miua.3928008.0001.001>
<https://vanburencd.org>
<https://www.blackrivertrailscampground.com/>
<https://www.chicagotribune.com/news/ct-xpm-1995-04-09-9504090067-story.html>
<https://www.michigan.gov/dnr>
<https://www.nature.org>
<https://www.southhaven.com>
<https://www.southhaven.org>
<https://www.trailink.com/trail/kal-haven-trail-sesquicentennial-state-park/>
<https://www.vbco.org>

RESOURCE MAPS

Riverwoods on the Trail – Location
Riverwoods on the Trail – Aerial Map
Riverwoods on the Trail – Elevation
Riverwoods on the Trail – Wetlands
Riverwoods on the Trail – Soil Composition

ATTACHMENT D

DUE CARE PLAN

**SATISFYING THE REQUIREMENTS OF RULE 299.51003
OF THE MICHIGAN ADMINISTRATIVE CODE**

**DOCUMENTING COMPLIANCE
WITH SECTION 20107A(1) OF
P.A. 451, PART 201, AS AMENDED**

**FOR:
NE CORNER BLUE STAR HIGHWAY & 2ND AVENUE
SOUTH HAVEN CHARTER TOWNSHIP
VAN BUREN COUNTY, MICHIGAN**

**PREPARED FOR:
STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES**



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 Table 4 Hazardous Substance Concentrations and GNRCC Comparison for Groundwater

ATTACHMENTS

- Attachment 1 Notice to Contractors

LIST OF ABBREVIATIONS/ACRONYMS

ags	Above Ground Surface
bgs	Below Ground Surface
BEA	Baseline Environmental Assessment
CA	Compliance Analysis
DCP	Due Care Plan
DW	Drinking Water
ESA	Environmental Site Assessment
F&V	Fleis & VandenBrink Engineering, Inc.
GDC	Groundwater Direct Contact
GNRCC	Generic Non-Residential Cleanup Criteria
GRCC	Generic Residential Cleanup Criteria
GSIPC	Groundwater Surface Interface Protection Criteria
GVIAI	Groundwater Volatilization to Indoor Air - Inhalation
LUST	Leaking Underground Storage Tank
MDEQ	Michigan Department of Environmental Quality
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAPL	Non-Aqueous Phase Liquid
NREPA	Natural Resources and Environmental Protection Act
PID	Photoionization Detector
PNA	Polynuclear Aromatics
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
QC	Quality Control
REC	Recognized Environmental Condition
SB	Soil Boring
SDC	Soil Direct Contact
SDW	Soil Leaching to Drinking Water
SGDC	Soil Leaching to Groundwater Direct Contact
SGSI	Soil Leaching to Groundwater Surface Water Interface
SHWS	State Hazardous Waste Sites
SOP	Standard Operating Procedure
SS	Soil Sample
SVI	Soil Volatilization – Inhalation
SVIAI	Soil Volatilization to Indoor Air – Inhalation
TB	Test Boring
TMW	Temporary Monitoring Well
USCS	United Soil Classification System
UST	Underground Storage Tank
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Section 20107a(1) (commonly referred to as Section 7a) of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, provides that a person who owns or operates property and also has knowledge that the property is a facility (i.e., a site of contamination) must do all of the following with respect to hazardous substances at the facility:

- a. Undertake measures as necessary to prevent exacerbation of existing contamination.
- b. Exercise due care by undertaking response activity necessary to mitigate unacceptable exposure to hazardous substances, mitigate fire and explosion hazards due to hazardous substances, and allow for the intended use of the facility in a manner that protects public health and safety.
- c. Take reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that foreseeably could result from those acts or omissions.
- d. Provide reasonable cooperation, assistance, and access to persons authorized to conduct response activities.
- e. Comply with land use or resource use restrictions.
- f. Not impede the effectiveness or integrity of any land use or resource use restrictions and response activities.

The process of reviewing what specific obligations need to be addressed during ownership and/or operations of the property is referred to as a Section 7a CA.

R 299.51003, Rule 1003(5) requires that a person subject to the provisions of Section 7a maintain documentation of compliance with Section 7a and provide such documentation to the MDEQ upon request. Such documentation is commonly referred to as a DCP. If the property use changes in the future, the potential exposure pathways must be reassessed at that time and documentation of compliance with Section 7a must be maintained.

The Property consists of approximately 58 acres of land and adjoins Blue Star Highway to the west and 2nd Avenue to the south. The Property is accessed by a road from the west off Blue Star Highway and from the south off 2nd Avenue. The Kal-Haven Trail crosses the northern portion of the Property on an easement.

This document has been prepared by F&V for the Property. This document does not constitute legal advice, nor does F&V purport to give legal advice. Certain information in this document may have been provided by agencies and/or persons other than F&V personnel. F&V makes no representation or warranties that such information is accurate or that any independent investigation, beyond the agreed Scope of Services, has been or will be made to verify the accuracy of such information. F&V has no obligation to any party other than the Owner, and F&V specifically disclaims any responsibility to any other party. F&V assumes no obligation for reporting any facts contained in this report to anyone other than the Owner.

This document was prepared to both provide direction to the Owner/Operator of the Property and to comply with Section 7a. The Property was determined to be a *facility*, as defined in Section 20101(1)(r) of Part 201.

Detailed information associated with the known contamination (i.e., sample concentrations of hazardous substances that exceed GRCC) at the Property is provided in the 2014 BEA document prepared by F&V.

Arsenic was identified in the Property's soil at concentrations exceeding Part 201 GRCC. The GRCC exceedances for soil include Drinking Water Protection Criteria (DWPC) and Direct Contact Criteria (DCC).

Lead was detected in the Property's groundwater at concentrations exceeding Part 201 GRCC. The GRCC exceedance for groundwater was the Drinking Water Criteria (DWC).

The soil and groundwater analytical data are summarized on Tables 1 and 2, respectively. A Site Plan that depicts the sampling locations is provided as Figure 2.

Preventing Exacerbation

Contaminated soils (i.e., soils with concentrations of hazardous materials that exceed Part 201 GRCC) have been identified on the Property at depths ranging between 1 and 2 feet below the ground surface (refer to Figure 2). Activities that are anticipated to be conducted during daily operations on the Property will not disturb the contaminated soils.

Contaminated groundwater has been identified on the Property at depths less than 5 feet below the ground surface. Activities that are anticipated to be conducted during daily operations on the Property will not disturb the contaminated groundwater.

Potable water is provided to the Property by the South Haven municipal water supply. Site groundwater will not be utilized for any purposes.

Any future activities on the Property that may result in the disruption of contaminated soils or contaminated groundwater will be performed in accordance with all applicable state and federal regulations, and a record describing the handling of the contaminated materials and their final disposition will be maintained. Subsurface work being conducted in the area of known contamination on the Property will be overseen by a qualified person.

Certain earth-moving and construction activities (Activities) on the Property may result in the disruption of contaminated soils. The Owner will confirm that site workers conducting Activities will be:

- provided the information of the known site contamination.
- required to conduct the Activities in accordance with all applicable local, state and federal regulations including Soil and Sedimentation Erosion Control measures.
- required to manage excess soils by properly characterizing, handling and disposing offsite.
- required to record a description of the handling of the contaminated soils and their final disposition.
- required to have subsurface work conducted in the area of known contamination on the Property overseen by a qualified person.

The performance of these actions will prevent the exacerbation of the existing conditions.

Mitigating Unacceptable Exposures

Soils with concentrations of hazardous materials that exceed Part 201 Generic Residential Cleanup Criteria (GRCC) have been identified on the Property (refer to Figure 2). Site personnel will not have contact with contaminated soil or contaminated groundwater during daily operations on the Property.

Potable water is provided to the Property by the City of South Haven municipal water supply.

Certain earth-moving and construction activities (Activities) on the Property may result in exposure to soil and groundwater contaminants. The Owner will confirm that site workers conducting Activities will be:

- made aware of proper management of excess soils and groundwater.
- provided the information of the known site contamination.
- operating in accordance with a Health & Safety Plan.
- provided appropriate PPE.
- required to conduct the Activities in accordance with all applicable local, state and federal regulations including Soil and Sedimentation Erosion Control measures.
- required to have subsurface work conducted in the area of known contamination on the Property overseen by a qualified person.

Site personnel are anticipated to have no contact with contaminated soil or contaminated groundwater during normal site operations. If subsurface activities are required (e.g., equipment/utility maintenance or repair), the contractor will be notified of the known contamination, activities will be overseen by a qualified person, and the activities will be conducted in accordance with all applicable state and federal regulations.

Reasonable Precaution

The Property is being held for future recreational development. All subsurface activities will be approved by the Owner of the Property and be conducted in accordance with all applicable state and federal regulations. These actions will protect against the reasonably foreseeable acts or omissions of a third party.

Site personnel will not have contact with contaminated soil during daily operations on the Property. All subsurface activities will be approved by the Owner of the Property and be conducted in accordance with all applicable state and federal regulations.

These actions will protect against identified and reasonably foreseeable acts or omissions of a third party.

1.0 INTRODUCTION

Following is the CA and DCP for the property located at the northeast corner of Blue Star Highway and 2nd Avenue, South Haven Charter Township, Van Buren County, Michigan (Property). A Site Location Map (Figure 1) and a Site Plan (Figure 2) are attached. The Property is owned by the State of Michigan Department of Natural Resources (Owner), who will use the Property for recreational purposes.

The Property consists of approximately 58 acres of land and adjoins Blue Star Highway to the west and 2nd Avenue to the south. The Property is accessed by a road from the west off Blue Star Highway and from the south off 2nd Avenue. The Kal-Haven Trail crosses the northern portion of the Property on an easement.

The current use of the Property is vacant land being held for future recreational development. The Property has been improved with a road and subsurface utilities, including a sanitary sewer lift station. No structures are present on the southern portion of the Property. Recreational improvements installed by the State of Michigan related to the Kal-Haven Trail easement on the northern portion of the Property include a gazebo and boardwalk, bike ramp, and boat dock.

Further details on the historical documentation for the Property are provided in the F&V report *Baseline Environmental Site Assessment, Northeast Corner, Blue Star Highway and 2nd Avenue (Approx. 58 Acres), South Haven Charter Township, Van Buren County, Michigan*, dated March 2014 (2014 BEA).

Based on results of the findings of the Phase I ESA, the following recognized environmental conditions (RECs) were identified for the Property:

1. Historical commercial orchard use on portions of the Property.
2. The Property is a Part 201 (State of Michigan Act 451) facility, due to soil containing concentrations of arsenic, and groundwater containing concentrations of lead, at levels exceeding Part 201 GRCC.

F&V was provided with a Title Commitment that did not identify any land use or resource restrictions that have been imposed upon the Property.

Subsurface sampling and laboratory analysis was conducted on the Property by AMEC Earth & Environmental, Inc. in August 2011 (Phase II ESA) and in October 2011 (Supplemental Phase II ESA). The results of the sampling and analysis are provided in the F&V 2014 BEA.

Based on the results of the sampling and analysis, the Property was determined to be a *facility*, as defined in Section 20101(1)(r) of Part 201 of the NREPA, P.A. 451 of 1994, as amended.

The hazardous substance arsenic was detected in soils at a concentration exceeding Part 201 GRCC. The GRCC exceedances for soil includes Drinking Water Protection Criteria and Direct Contact Criteria.

The hazardous substance lead was detected in groundwater at a concentrations exceeding Part 201 GRCC. The GRCC exceedance for groundwater is the Drinking Water Criteria.

The Property will be used for recreational uses in the future; therefore the data were compared to Part 201 GRCC.

The soil and groundwater analytical data are summarized and compared to Part 201 GRCC on Tables 1 and 2, respectively. A Site Plan that depicts the sampling locations and analytical data that exceeds Part 201 GRCC is provided as Figure 2.

2.0 HAZARDOUS SUBSTANCE INFORMATION

2.1 Known Contamination

A limited Phase II ESA was conducted on the Property by AMEC Earth and Environmental Inc. (AMEC) and reported in the document "*Limited Phase II Environmental Site Assessment, IRED Riverwoods on the Trail, NEC of Blue Star Memorial Highway & 2nd Avenue, South Haven, Michigan*" dated August 26, 2011. The Phase II was conducted when the site was being considered for a residential subdivision. Those plans have subsequently changed.

AMEC completed 27 soil borings at the Property and collected 53 soil samples and nine groundwater samples. The soil samples were analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), herbicides, pesticides, lead, arsenic and/or polychlorinated biphenyls (PCBs). The groundwater samples were analyzed for VOCs, PNAs, pesticides, herbicides, lead and/or arsenic. The analytical data was compared to Part 201 Generic Residential Cleanup Criteria.

Arsenic was detected in two (2) soil samples at concentrations that exceeded Part 201 GRCC. Lead was detected in two (2) groundwater samples at concentrations exceeding Part 201 GRCC.

A supplemental Phase II ESA was conducted on the Property by AMEC to further evaluate the distribution of arsenic in soils and lead in groundwater. The results of the investigation were reported in the document "*Supplemental Phase II Environmental Site Assessment, IRED Riverwoods on the Trail, NEC of Blue Star Memorial Highway & 2nd Avenue, South Haven, Michigan*" dated October 21, 2011.

AMEC completed 41 soil borings at the Property and collected 41 soil samples and two groundwater samples. The soil samples were analyzed for arsenic, and the groundwater samples were analyzed for lead. The analytical data was compared to Part 201 Generic Residential Cleanup Criteria.

Arsenic was detected in two (2) soil samples at concentrations that exceeded Part 201 GRCC. Lead was not detected in the groundwater samples at concentrations exceeding Part 201 GRCC.

Detailed information associated with the known contamination (i.e., sample concentrations of hazardous substances that exceed GRCC) at the Property is provided in the 2014 BEA document prepared by F&V.

Arsenic was identified in the Property's soil at concentrations exceeding Part 201 GRCC. The GRCC exceedances for soil include Drinking Water Protection Criteria (DWPC) and Direct Contact Criteria (DCC).

Lead was detected in the Property's groundwater at concentrations exceeding Part 201 GRCC. The GRCC exceedance for groundwater was the Drinking Water Criteria (DWC).

The soil and groundwater analytical data are summarized on Tables 1 and 2, respectively. A Site Plan that depicts the sampling locations is provided as Figure 2.

2.2 Exposure Pathway Evaluation

A migration pathway and exposure evaluation was conducted to identify certain human and environmental exposures. Potential exposure pathways are listed in relevant guidance documents issued by the MDEQ. The evaluation takes into consideration the Property's likely future use. The exposure pathways potentially applicable to the Property are evaluated in the following sections.

A complete exposure pathway is generally defined by the following four elements:

- A source of chemical release to the environment.
- An environmental medium for transport of the chemical (e.g., air, groundwater, or soil).
- A point of potential exposure for a receptor.
- A route of exposure for the receptor (e.g., ingestion, inhalation, or dermal contact).

An exposure pathway is considered complete or potentially complete, and exposure is considered possible, only if all four of the above elements are present (i.e., exposure is deemed applicable).

Following is an evaluation of specific potential exposure pathways for the Property related to identified contamination (i.e., sample concentrations of hazardous substances that exceed GRCC).

2.2.1 Drinking Water (DW)

Applicable – There are no use restrictions currently on the Property. Municipal water is supplied to the Property. Soil contamination has been identified on the Property at concentrations that exceed DWPC. Groundwater contamination has been identified on the Property at concentrations exceeding DWC. This pathway is relevant and is evaluated in Section 2.3.

2.2.2 Groundwater Direct Contact (GDC)

Not Applicable – Groundwater contamination has not been identified at concentrations that exceed GDC criteria. This pathway is not relevant and does not need to be evaluated.

2.2.3 Groundwater Surface Water Interface (GSI)

Not Applicable – Groundwater contamination has not been identified at concentrations that exceed GSI criteria. This pathway is not relevant and does not need to be evaluated.

2.2.4 Groundwater Volatilization to Indoor Air – Inhalation (GVIAI)

Not Applicable – Groundwater contamination has not been identified at concentrations that exceed GVIAI criteria. This pathway is not relevant and does not need to be evaluated.

2.2.5 Non-Aqueous Phase Liquids (NAPLs)

Not Applicable – NAPLs have not been identified on the Property. This pathway is not relevant and does not need to be evaluated.

2.2.6 Soil Direct Contact (SDC)

Applicable – Soil contamination has been identified in shallow soils at concentrations that exceed SDC criteria. This pathway is relevant and is evaluated in Section 2.3.

2.2.7 Soil Leaching to Drinking Water (SDW)

Applicable – Soil contamination has been identified at concentrations that exceed SDW criteria. This pathway is relevant and is evaluated in Section 2.3.

2.2.8 Soil Leaching to Groundwater Direct Contact (SGDC)

Not Applicable – Soil contamination has not been identified at concentrations that exceed SGDC criteria. This pathway is not relevant and does not need to be evaluated.

2.2.9 Soil Leaching to Groundwater Surface Water Interface (SGSI)

Not Applicable – Soil contamination has not been identified at concentrations that could leach contamination to groundwater above SGSI criteria. This pathway is not relevant and does not need to be evaluated.

2.2.10 Soil Volatilization – Inhalation (SVI)

Not Applicable – Soil contamination has not been identified at concentrations that exceed SVI criteria. This pathway is not relevant and does not need to be evaluated.

2.2.11 Soil Transport to Surface Water

Not Applicable – There are no surface water bodies at the Property. Soil contamination has not been identified at concentrations that exceed GSI criteria. This pathway is not relevant and does not need to be evaluated.

2.2.12 Soil Volatilization to Indoor Air – Inhalation (SVIAI)

Not Applicable – Soil contamination has not been identified at concentrations that exceed SVIAI criteria. This pathway is not relevant and does not need to be evaluated.

2.2.13 Surface Water Sediments

Not Applicable – There are no surface water bodies in close proximity to the Property. This pathway is not relevant and does not need to be evaluated.

2.2.14 Exposure Pathway Summary

The exposure pathway analysis is summarized as follows:

EXPOSURE PATHWAY	APPLICABLE	NOT APPLICABLE
Drinking Water	X	
Groundwater Direct Contact		X
Groundwater Surface Water Interface		X
Groundwater Volatilization to Indoor Air – Inhalation		X
Non-Aqueous Phase Liquids (NAPLs)		X
Soil Direct Contact	X	
Soil Leaching to Drinking Water	X	
Soil Leaching to Groundwater Direct Contact		X
Soil Leaching to Groundwater Surface Water Interface		X
Soil Volatilization – Inhalation		X
Soil Transport to Surface Water		X
Soil Volatilization to Indoor Air – Inhalation		X
Surface Water Sediments		X

Potentially complete human exposure pathways at the Property include: ingestion of drinking water, soil leaching to drinking water, and dermal contact with contaminated soils. Table 3 (soil)

and Table 4 (groundwater) compare detected hazardous substance concentrations above GRCC to potential exposure pathways.

2.3 Exposure Controls

This section details exposure controls for the identified relevant exposure pathways that have been determined to potentially be complete at the Property.

2.3.1 Ingestion of Drinking Water

Municipal drinking water is provided to the Property. Groundwater contamination at the Property has been identified at concentrations that exceed DWC. Soil contamination at the Property has been identified at concentrations that exceed DWPC. There are no land use or resource restrictions in place for the Property that restrict the use of groundwater for drinking water purposes, therefore this exposure pathway has the potential to be completed. The municipal water supply will be utilized for potable water at the Property to control this exposure pathway.

2.3.2 Soil Leaching to Drinking Water

Soil contamination has been identified on a portion of the Property at concentrations that exceed DWPC. Groundwater contamination has been identified at the Property. Municipal drinking water is available to the Property. There are no land use or resource restrictions in place for the Property that restrict the use of groundwater for drinking water purposes, therefore this exposure pathway has the potential to be completed. The municipal water supply will be utilized for potable water at the Property.

2.3.3 Dermal Contact with Contaminated Soil

Shallow soil contamination at the Property has been identified at concentrations that exceed DCC. Site workers and users are not anticipated to have contact with the contaminated soils during normal daily activities. Site workers that may conduct subsurface activities, such as excavation or trenching, have the potential to contact contaminated soils; therefore this exposure pathway has the potential to be complete. To prevent the completion of this exposure pathway, all excavation or subsurface activities will be approved by the Owner and the information regarding the soil contamination will be provided to the site workers performing the subsurface activities. Subsurface work being conducted in the area of known contamination on the Property will be overseen by a qualified person.

3.0 NOTIFICATIONS AND CONTAMINANT MITIGATION

3.1 Offsite Migration Notification

There is no known offsite migration of contamination at the Property. An offsite migration notice has not been filed with the MDEQ, nor is it required for this Property.

3.2 Abandoned Container Notification

There are no abandoned containers located on the Property. A notice of abandoned containers has not been filed with the MDEQ, nor is it required for this Property.

3.3 Easement Holder Notification

Unacceptable (i.e., hazardous substances in soil or groundwater exceeding non-residential direct contact criteria) exposure risks to utility workers have not been identified at the Property. A notification to all identified easement holders that have the potential to be impacted by hazardous substances or metals in soil or groundwater located on the Property is not necessary.

3.4 Mitigation of Fire and Explosion Hazards

Fire or explosion hazards that would require their mitigation have not been identified.

4.0 DUE CARE SUMMARY

4.1 Preventing Exacerbation

Contaminated soils (i.e., soils with concentrations of hazardous materials that exceed Part 201 GRCC) have been identified on the Property at depths ranging between 1 and 2 feet below the ground surface (refer to Figure 2). Activities that are anticipated to be conducted during daily operations on the Property will not disturb the contaminated soils.

Contaminated groundwater has been identified on the Property at depths less than 5 feet below the ground surface. Activities that are anticipated to be conducted during daily operations on the Property will not disturb the contaminated groundwater.

Potable water is provided to the Property by the South Haven municipal water supply. Site groundwater will not be utilized for any purposes.

Any future activities on the Property that may result in the disruption of contaminated soils or contaminated groundwater will be performed in accordance with all applicable state and federal regulations, and a record describing the handling of the contaminated materials and their final disposition will be maintained. Subsurface work being conducted in the area of known contamination on the Property will be overseen by a qualified person.

Certain earth-moving and construction activities (Activities) on the Property may result in the disruption of contaminated soils. The Owner will confirm that site workers conducting Activities will be:

- provided the information of the known site contamination.
- required to conduct the Activities in accordance with all applicable local, state and federal regulations including Soil and Sedimentation Erosion Control measures.
- required to manage excess soils by properly characterizing, handling and disposing offsite.
- required to record a description of the handling of the contaminated soils and their final disposition.
- required to have subsurface work conducted in the area of known contamination on the Property overseen by a qualified person.

The performance of these actions will prevent the exacerbation of the existing conditions.

4.2 Mitigating Unacceptable Exposures

Soils with concentrations of hazardous materials that exceed Part 201 Generic Residential Cleanup Criteria (GRCC) have been identified on the Property (refer to Figure 2). Site personnel will not have contact with contaminated soil or contaminated groundwater during daily operations on the Property.

Potable water is provided to the Property by the City of South Haven municipal water supply.

Certain earth-moving and construction activities (Activities) on the Property may result in exposure to soil and groundwater contaminants. The Owner will confirm that site workers conducting Activities will be:

- made aware of proper management of excess soils and groundwater.
- provided the information of the known site contamination.
- operating in accordance with a Health & Safety Plan.
- provided appropriate PPE.

- required to conduct the Activities in accordance with all applicable local, state and federal regulations including Soil and Sedimentation Erosion Control measures.
- required to have subsurface work conducted in the area of known contamination on the Property overseen by a qualified person.

Site personnel are anticipated to have no contact with contaminated soil or contaminated groundwater during normal site operations. If subsurface activities are required (e.g., equipment/utility maintenance or repair), the contractor will be notified of the known contamination, activities will be overseen by a qualified person, and the activities will be conducted in accordance with all applicable state and federal regulations.

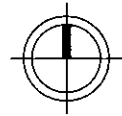
4.3 Reasonable Precaution

The Property is being held for future recreational development. All subsurface activities will be approved by the Owner of the Property and be conducted in accordance with all applicable state and federal regulations. These actions will protect against the reasonably foreseeable acts or omissions of a third party.

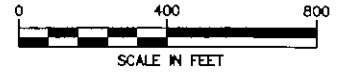
Site personnel will not have contact with contaminated soil during daily operations on the Property. All subsurface activities will be approved by the Owner of the Property and be conducted in accordance with all applicable state and federal regulations.

These actions will protect against identified and reasonably foreseeable acts or omissions of a third party.

Fig 1 Site Location Map\amberg 021314



NORTH



The property lines showing the extent of the site are for reference only, they do not represent any actual property line properly located by an actual survey and research and MUST NOT be relied on for any purpose.

AERIAL IMAGE PROVIDED BY © GOOGLE EARTH.

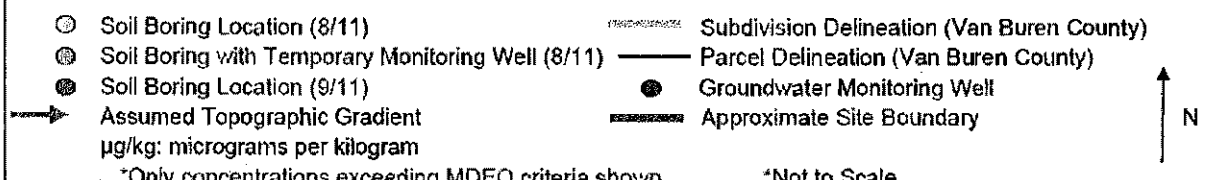
NE CORNER BLUE STAR HIGHWAY &
2nd AVENUE
SOUTH HAVEN CHARTER TOWNSHIP, MICHIGAN

SITE LOCATION MAP
FIGURE 1

2014

818370

FLEIS & VANDENBRINK ENGINEERING, INC.




AMEC Earth and Environmental 10524 East Grand River, Ste 104 Brighton, MI 48116				CLIENT Bank of America	
PROJECT <i>NEC of Blue Star Memorial Highway and 2nd Avenue</i> <i>South Haven, Michigan</i>		DWN BY MMD		DATUM N/A	DATE October 14, 2011
TITLE SITE PLAN IRED Riverwoods on the Trail		CHK'D BY NHR		REV. NO A	PROJECT NO 7-8035-0037
		PROJECTION N/A		SCALE N/A	FIGURE NO ES-1

FIGURE 2

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Table 3 – Hazardous Substance Concentrations and GRCC Comparison for Soil
 Due Care Plan
 NE Corner Blue Star Highway & 2nd Avenue, South Haven Charter Township,
 Van Buren County, Michigan

Hazardous Substance	CAS Number	Location and Depth (ft bgs)	Concentration (µg/kg)	Criteria Exceeded		
				DWP	DC	GSIP
Arsenic	7440-38-2	GP-08 1-2'	9,400	x	x	
Arsenic	7440-38-2	GP-09 1-2'	6,100	x	x	
Arsenic	7440-38-2	GP-39 1-2'	8,200	x	x	
Arsenic	7440-38-2	GP-60 1-2'	9,400	x	x	

CAS – Chemical Abstract Service

ft bgs – feet below ground surface

µg/kg – microgram per kilogram

DWP – Drinking Water Protection 7,600 limit

DC – Direct Contact 7,600 limit

GSIP – Groundwater Surface Water Interface Protection

Table 4 – Hazardous Substance Concentrations and GRCC Comparison for Groundwater
 Due Care Plan
 NE Corner Blue Star Highway & 2nd Avenue, South Haven Charter Township,
 Van Buren County, Michigan

Hazardous Substance	CAS Number	Location and Depth (ft bgs)	Concentration (µg/L)	Criteria Exceeded		
				DW	DC	GSI
Lead	7439-92-1	TMW-8 <5'	49	X		
Lead	7439-92-1	TMW-23 <5'	23	X		

CAS – Chemical Abstract Service

ft bgs – feet below ground surface

µg/L – microgram per liter

DW – Drinking Water 5 limit

DC – Direct Contact

GSI – Groundwater Surface Water Interface

DEQ Toxicologist
 Risk Based number
 site specific

Table 3: Soil Analytical Results Summary
 818370 NEC Blue Star Hwy & 2nd Avenue
 Historical Sampling Data - 2011

Sampling Location		GP-1	GP-1	GP-2	GP-2	GP-3	GP-3	GP-4	GP-4	GP-5	GP-5	GP-6	GP-6	GP-7	GP-7	GP-8	GP-8	GP-9	GP-9	GP-10	
Screened Interval		0-1	9-10	0-1	3-4	1-2	3-4	0-1	2-3	1-2	2-3	0-1	3-4	0-1	9-10	1-2	3-4	0-1	9-10	0-1	
Collection Date		08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	08/11/11	08/11/11	08/11/11	08/11/11	08/12/11	08/12/11	08/12/11	
Hazardous Substance		Chemical Abstract Service Number																			
METALS																					
Arsenic		7440382	5,800	6,700	2,900	2,100	1,800	1,100	1,700	1,300	2,600	840	1,300	1,100	2,800	2,700	8,400	1,100	8,100	5,100	1,400
Lead (Pb)		7439921	15,000	5,100	11,000	7,700	10,000	4,800	3,800	2,900	8,800	1,400	2,300	2,100	14,000	5,100	16,000	3,300	11,000	8,900	6,700
Special Handling Remarks:																					

Part 201 Residential Generic
 Cleanup Criteria, Part 213 Tier 1 Risk-
 Based Screening Levels (RBSLs).
 MDEQ, December 31, 2013
 Values in micrograms per kilogram (µg/kg).
 Bolded values exceed one or more
 of the criterion.

Table 3: Soil Analytical Results Summary
 818370 NEC Blue Star Hwy & 2nd Avenue
 Historical Sampling Data - 2011

Sampling Location	GP-10	GP-11	GP-11	GP-12	GP-12	GP-13	GP-13	GP-14	GP-14	GP-15	GP-15	GP-16	GP-16	GP-17	GP-17	GP-18	GP-18	GP-19	GP-19
Screened Interval	4-6	1-2	3-4	0-1	1-2	0-1	3-4	0-1	1-2	1-2	3-4	0-1	3-4	0-1	2-3	1-2	3-4	0-1	2-3
Collection Date	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11
Hazardous Substance	Chemical Abstract Service Number																		
METALS																			
Arsenic	7440382	3,200	1,500	2,800	1,200	360	1,100	3,500	2,300	2,100	3,800	670	3,400	1,200	1,800	1,300	1,200	800	2,000
Lead (B)	7439921	6,400	4,300	3,000	4,700	1,300	1,800	11,800	8,800	3,000	16,000	1,100	17,000	3,000	11,000	3,200	8,800	1,800	6,200

*Part 201 Residential Generic
 Cleanup Criteria, Part 213 Tier 1 Risk-
 Based Screening Levels (RBSLs),
 MDEQ, December 31, 2013

Values in micrograms per kilogram (µg/kg).
 Bolded values exceed one or more
 of the criterion.

Table 3: Soil Analytical Results Summary
818370 NEC Blue Star Hwy & 2nd Avenue
Historical Sampling Data - 2011

Sampling Location	GP-20	GP-20	GP-21	GP-21	GP-22	GP-22	GP-23	GP-23	GP-24	GP-24	GP-25	GP-25	GP-26	GP-26	GP-27	GP-28	GP-29	GP-30	GP-31
Screened Interval	0-1	3-4	1-2	3-4	1-2	3-4	1-2	3-4	0-1	3-4	0-1	2-3	1-2	14-15	1-2	1-2	1-2	1-2	1-2
Collection Date	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/12/11	08/12/11	08/12/11	08/12/11	08/12/11	09/20/11	09/20/11	09/20/11	09/20/11
Hazardous Substance																			
Chemical Abstract Service Number																			
METALS																			
Arsenic	7446362	1,200	750	640	718	300	1,300	1,400	1,800	860	NA	NA	NA	NA	NA	NA	3,700	4,300	5,800
Lead (B)	7439921	5,000	1,400	<1,800	1,800	1,000	<1,800	18,000	2,800	12,000	NA	NA	ND	NA	NA	NA	NA	NA	NA

Part 201 Residential Generic
 Cleanup Criteria, Part 213 Tier 1 Risk-
 Based Screening Levels (RSSLs),
 MDEQ, December 31, 2013
 Values in micrograms per kilogram (µg/kg).
 Bolded values exceed one or more
 of the criterion.

Table 3: Soil Analytical Results Summary
818370 NEC Blue Star Hwy & 2nd Avenue
Historical Sampling Data - 2011

Sampling Location	GP-32	GP-33	GP-34	GP-35	GP-36	GP-37	GP-38	GP-39	GP-40	GP-41	GP-42	GP-43	GP-44	GP-45	GP-46	GP-47	GP-48	GP-49	GP-50
Screened Interval	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
Collection Date	09/20/11	09/20/11	09/20/11	09/20/11	09/21/11	09/21/11	09/21/11	09/21/11	09/21/11	09/21/11	09/21/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11
Hazardous Substance																			
Chemical Abstract Service Number																			
METALS																			
Arsenic	7440382	4,400	1,900	2,800	540	1,800	590	2,900	8,200	1,800	660	3,900	2,100	5,700	2,100	2,500	3,500	4,100	810
Lead (B)	7439921	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

*Part 201 Residential Generic
Cleanup Criteria, Part 213 Tier 1 Risk-
Based Screening Levels (RBSLs),
MDEQ, December 31, 2013

Values in micrograms per kilogram (ug/kg).
Bolded values exceed one or more
of the criterion.

Table 3: Soil Analytical Results Summary
 818370 NEC Blue Star Hwy & 2nd Avenue
 Historical Sampling Data - 2011

Sampling Location		GP-51	GP-52	GP-53	GP-54	GP-55	GP-56	GP-57	GP-58	GP-59	GP-60	GP-61	GP-62	GP-63	GP-64	GP-65	GP-66	GP-67	GP-68
Screened Interval		1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2
Collection Date		09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11	09/22/11
Hazardous Substance	Chemical Abstract Service Number																		
METALS																			
Arsenic	7440392	2,300	1,700	2,300	4,400	3,000	820	970	3,200	1,300	6,400	1,700	3,700	1,400	2,400	4,700	2,200	1,400	1,600
Lead (B)	7439921	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

*Part 201 Residential Generic
 Cleanup Criteria, Part 213 Tier 1 Risk-
 Based Screening Levels (RBSLs),
 MDEQ, December 31, 2013
 Values in micrograms per kilogram (µg/kg).
 Bolded values exceed one or more
 of the criterion.

Table 3: Soil Analytical Results Summary
 818370 NEC Blue Star Hwy & 2nd Avenue
 Historical Sampling Data - 2011

Screened Interval											
Sampling Location		Screened Interval									
Collection Date		#10	Groundwater Protection		Indoor Air	Ambient Air (#17)			Direct Contact		
			#11	#12	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Level	Residential Delineating Water Protection Criteria & RBSLs	Groundwater Surface Water Interface Protection Criteria & RBSLs	Soil Volatilization to Indoor Air Inhalation Criteria & RBSLs	Infinite Source Volatile Soil Inhalation Criteria (VISC) & RBSLs	Finite VISC for 8 Meter Source Thickness	Finite VISC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria & RBSLs	Residential Direct Contact Criteria & RBSLs	Soil Saturation Concentration Screening Levels
METALS											
Arsenic	1440952	5,800	4,200	4,800	NLV	NLV	NLV	NLV	7.25E+06	7,800	NA
Lead (P)	7439921	21,000	7.00E+06	(3,0)	NLV	NLV	NLV	NLV	1.00E+06	4.00E+06	NA

Part 201 Residential General Cleanup Criteria, Part 213 Tier 1 Risk-Based Screening Levels (RBSLs), MDEQ, December 31, 2013

Values in micrograms per kilogram (µg/kg).
 Bolded values exceed one or more of the criterion.

Table 4: Groundwater Analytical Results Summary

818370 NEC Blue Star Hwy & 2nd Avenue

Historical Sampling Data - 2011

Sampling Location	TMW-2	TMW-8	TMW-10	TMW-14	TMW-15	TMW-18	TMW-22	TMW-23	TMW-25	MW1	MW-2
Screened Interval (feet bgs)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Collection Date	08/12/11	08/11/11	08/12/11	08/11/11	08/11/11	08/11/11	08/11/11	08/11/11	08/12/11	09/22/11	09/22/11
Hazardous Substance											
Chemical Abstract Service Number											
METALS											
Arsenic	7440382	<1	9	4	<1	<1	<1	3	4	NA	NA
Lead (B)	7439921	<3	49	<3	<3	<3	<3	<3	23	NA	<3

*Part 201 Residential Generic Cleanup Criteria and Screening Levels; Part 213 Tier 1 Risk-Based Screening Levels (RBSLs), MDEQ, December 31, 2013

Values in micrograms per liter (µg/L).

Bolded values exceed one or more of the criterion.

Table 4: Groundwater Analytical Results Summary
 818370 NEC Blue Star Hwy & 2nd Avenue
 Historical Sampling Data - 2011

Sampling Location		Screened Interval (feet bgs)						
	Collection Date	#1	#2	#3	#4	#5	#7	#8
Hazardous Substance	Chemical Abstract Service Number	Residential Drinking Water Criteria	Nonresidential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Nonresidential Groundwater Volatilization to Indoor Air Inhalation Criteria	Water Solubility	Flammability and Explosivity Screening Level
METALS								
Arsenic	7440382	10 (A)	10 (A)	10	NLV	NLV	NA	ID
Lead (B)	7439921	4.0 (L)	4.0 (L)	(G,X)	NLV	NLV	NA	ID

*Part 201 Residential Generic Cleanup Criteria and Screening Levels; Part 213 Tier 1 Risk-Based Screening Levels (RBSLs), MDEQ, December 31, 2013

Values in micrograms per liter (µg/L).

Bolded values exceed one or more of the criterion.

ATTACHMENT 1

NOTICE TO CONTRACTORS
NE CORNER BLUE STAR HIGHWAY & 2ND AVENUE
SOUTH HAVEN CHARTER TOWNSHIP
VAN BUREN COUNTY, MICHIGAN

NOTICE

Soil and groundwater contamination are present on this site. All Contractors performing subsurface work on this site must conform with the provisions stipulated within this notice.

CONTAMINATION SUMMARY

Environmental investigations have been conducted at the site and the hazardous substance arsenic was detected in soils and lead was detected in groundwater at concentrations exceeding their respective Part 201 Generic Residential Cleanup Criteria. The attached Figure shows the location and concentrations of the known contamination.

HEALTH AND SAFETY

The Contractor is required to prepare a Health and Safety Plan to protect their workers against unacceptable exposure to site contamination. The attached tables list the contamination at the site that exceeds Part 201 Residential Criteria.

DUE CARE ACTIONS

The contractor shall comply with all the Due Care Actions listed below:

- All subsurface work must be approved by the Owner in advance.
- All work will be required to be conducted in accordance with Soil and Sedimentation Erosion Control measures, as required by the implementing agency.
- If construction dewatering is necessary during site development activities, any purged groundwater will be properly characterized, handled and discharged in accordance with applicable local, state and federal regulations.
- Any excess soils generated on the site that have to be removed for offsite disposal will be properly characterized, handled and disposed in accordance with applicable local, state and federal regulations.

REPORTING

Contractor shall provide Owner or the designated Owner's Representative with copies of all permits, waste characterization information and analytical data, and waste disposal documentation.

NOTICE TO CONTRACTORS
NE CORNER BLUE STAR HIGHWAY & 2ND AVENUE
SOUTH HAVEN CHARTER TOWNSHIP
VAN BUREN COUNTY, MICHIGAN

Table 1 – Soil Contamination and Exposure Pathways

Due Care Plan

NE Corner Blue Star Highway & 2nd Avenue, South Haven Charter Township,
 Van Buren County, Michigan

Hazardous Substance	CAS Number	Location and Depth (ft bgs)	Concentration (µg/kg)	Criteria Exceeded		
				DW	DC	GSIP
Arsenic	7440-38-2	GP-08 1-2'	9,400	x	x	
Arsenic	7440-38-2	GP-09 1-2'	6,100	x	x	
Arsenic	7440-38-2	GP-39 1-2'	8,200	x	x	
Arsenic	7440-38-2	GP-60 1-2'	9,400	x	x	

CAS – Chemical Abstract Service

ft bgs – feet below ground surface

µg/kg – microgram per kilogram

DW – Drinking Water Protection

DC – Direct Contact

GSIP – Groundwater Surface Water Interface Protection

Table 2 – Groundwater Contamination and Exposure Pathways

Due Care Plan

NE Corner Blue Star Highway & 2nd Avenue, South Haven Charter Township,
 Van Buren County, Michigan

Hazardous Substance	CAS Number	Location and Depth (ft bgs)	Concentration (µg/L)	Criteria Exceeded		
				DW	DC	GSI
Lead	7439-92-1	TMW-8 <5'	49	X		
Lead	7439-92-1	TMW-23 <5'	23	X		

CAS – Chemical Abstract Service

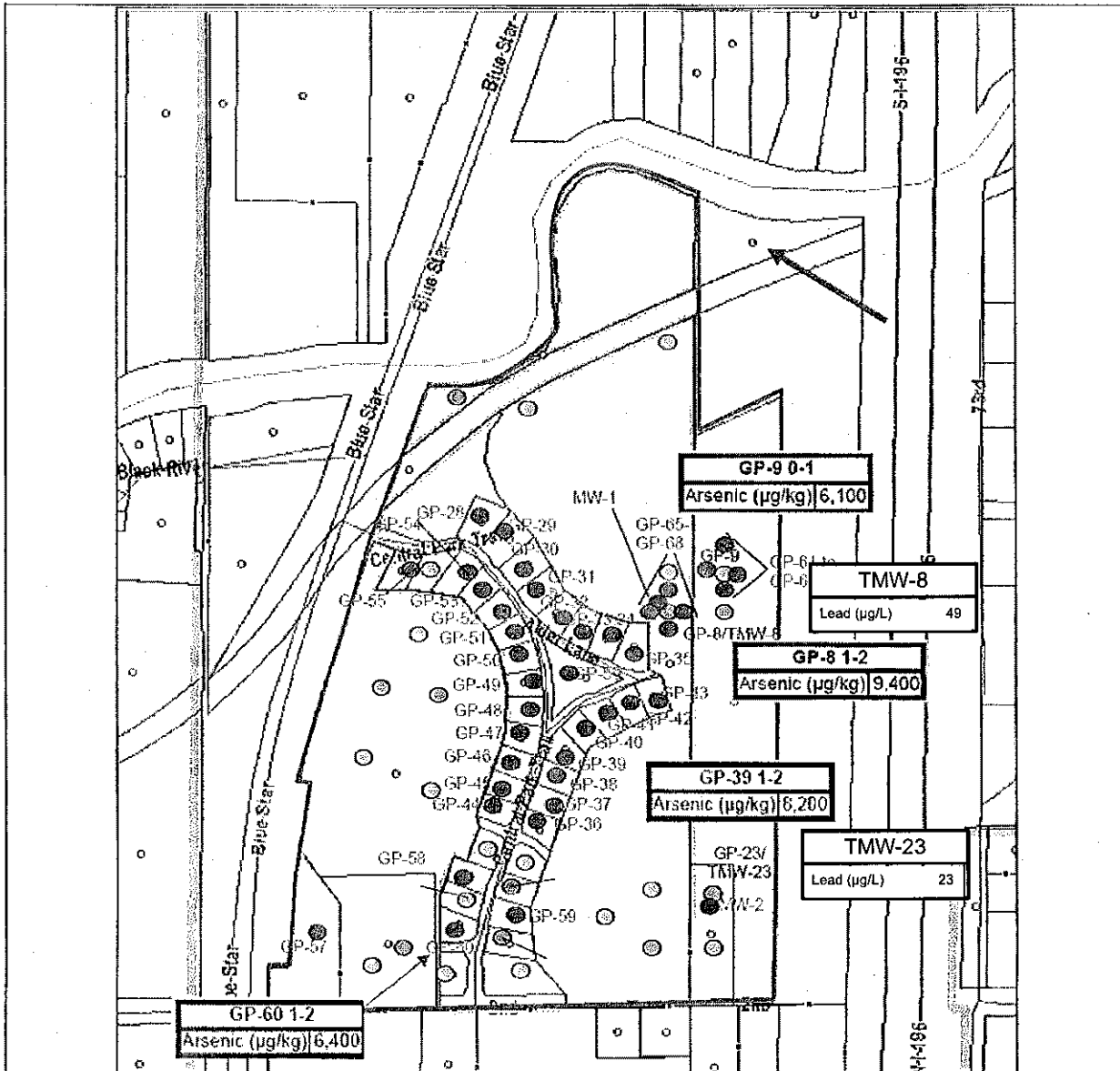
ft bgs – feet below ground surface

µg/L – microgram per liter

DW – Drinking Water

DC – Direct Contact

GSI – Groundwater Surface Water Interface



- Soil Boring Location (8/11)
- Soil Boring with Temporary Monitoring Well (8/11)
- Soil Boring Location (9/11)
- Assumed Topographic Gradient
- µg/kg: micrograms per kilogram
- Subdivision Delineation (Van Buren County)
- Parcel Delineation (Van Buren County)
- Groundwater Monitoring Well
- Approximate Site Boundary

*Only concentrations exceeding MDEQ criteria shown.

*Not to Scale

AMEC Earth and Environmental 10524 East Grand River, Ste 104 Brighton, MI 48116		CLIENT Bank of America	
PROJECT NEC of Blue Star Memorial Highway and 2 nd Avenue South Haven, Michigan		DWN BY MMD	DATUM N/A
TITLE SITE PLAN IRED Riverwoods on the Trail		CHK'D BY NHR	DATE October 14, 2011
		PROJECTION N/A	PROJECT NO 7-8035-0037
		SCALE N/A	FIGURE NO ES-1

DUE CARE PLAN

SITE PLAN SHOWING ANALYTICAL DATA
EXCEEDING GRCC CRITERIA

FIGURE 2

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